# AVAYA

# Overview of the Avaya™ S8700 Media Server for IP Connect Configurations

**Notice**

Every effort was made to ensure that the information in this document was complete and accurate at the time of printing. However, information is subject to change.

**Warranty**

Avaya Inc. provides a limited warranty on this product. Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya's standard warranty language as well as information regarding support for this product, while under warranty, is available through the following website:
http://www.avaya.com/support

**Preventing Toll Fraud**

"Toll fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there may be a risk of toll fraud associated with your system and that, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

**Avaya Fraud Intervention**

If you suspect that you are being victimized by toll fraud and you need technical assistance or support, in the United States and Canada, call the Technical Service Center's Toll Fraud Intervention Hotline at 1-800-643-2353.

**How to Get Help**

For additional support telephone numbers, go to the Avaya Web site:
http:/www.avaya.com/support/

If you are:
- Within the United States, click *Escalation Lists*, which includes escalation phone numbers within the USA.
- Outside the United States, click *Escalation Lists* then click *Global Escalation List*, which includes phone numbers for the regional Centers of Excellence.

**Providing Telecommunications Security**

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of) your company's telecommunications equipment by some party.

Your company's "telecommunications equipment" includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:
- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll-facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

**Responsibility for Your Company's Telecommunications Security**

The final responsibility for securing both this system and its networked equipment rests with you - Avaya's customer system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:
- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure:
- Your Avaya-provided telecommunications systems and their interfaces
- Your Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products.

**TCP/IP Facilities**

Customers may experience differences in product performance, reliability and security depending upon network configurations/design and topologies, even when the product performs as warranted.

**Standards Compliance**

Avaya Inc. is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Avaya Inc. The correction of interference caused by such unauthorized modifications, substitution or attachment will be the responsibility of the user. Pursuant to Part 15 of the Federal Communications Commission (FCC) Rules, the user is cautioned that changes or modifications not expressly approved by Avaya Inc. could void the user's authority to operate this equipment.

**Product Safety Standards**

This product complies with and conforms to the following international Product Safety standards as applicable:

Safety of Information Technology Equipment, IEC 60950, 3rd Edition including all relevant national deviations as listed in Compliance with IEC for Electrical Equipment (IECEE) CB-96A.

Safety of Information Technology Equipment, CAN/CSA-C22.2 No. 60950-00 / UL 60950, 3rd Edition

Safety Requirements for Customer Equipment, ACA Technical Standard (TS) 001 - 1997

One or more of the following Mexican national standards, as applicable: NOM 001 SCFI 1993, NOM SCFI 016 1993, NOM 019 SCFI 1998

The equipment described in this document may contain Class 1 LASER Device(s). These devices comply with the following standards:
- EN 60825-1, Edition 1.1, 1998-01
- 21 CFR 1040.10 and CFR 1040.11.

The LASER devices operate within the following parameters:
- Maximum power output: -5 dBm to -8 dBm
- Center Wavelength: 1310 nm to 1360 nm

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Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposures. Contact your Avaya representative for more laser product information.

## Electromagnetic Compatibility (EMC) Standards

This product complies with and conforms to the following international EMC standards and all relevant national deviations:

Limits and Methods of Measurement of Radio Interference of Information Technology Equipment, CISPR 22:1997 and EN55022:1998.

Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement, CISPR 24:1997 and EN55024:1998, including:
- Electrostatic Discharge (ESD) IEC 61000-4-2
- Radiated Immunity IEC 61000-4-3
- Electrical Fast Transient IEC 61000-4-4
- Lightning Effects IEC 61000-4-5
- Conducted Immunity IEC 61000-4-6
- Mains Frequency Magnetic Field IEC 61000-4-8
- Voltage Dips and Variations IEC 61000-4-11
- Powerline Harmonics IEC 61000-3-2
- Voltage Fluctuations and Flicker IEC 61000-3-3

## Federal Communications Commission Statement

### Part 15:

> **Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.**

**Part 68: Answer-Supervision Signaling.** Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 rules. This equipment returns answer-supervision signals to the public switched network when:
- answered by the called station,
- answered by the attendant, or
- routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user.

This equipment returns answer-supervision signals on all direct inward dialed (DID) calls forwarded back to the public switched telephone network. Permissible exceptions are:
- A call is unanswered.
- A busy tone is received.
- A reorder tone is received.

Avaya attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

This equipment complies with Part 68 of the FCC Rules. On the rear of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. REN is not required for some types of analog or digital facilities.

### Means of Connection

Connection of this equipment to the telephone network is shown in the following table.

| Manufacturer's Port Identifier | FIC Code | SOC/REN/ A.S. Code | Network Jacks |
|---|---|---|---|
| Off/On premises station | OL13C | 9.0F | RJ2GX, RJ21X, RJ11C |
| DID trunk | 02RV2-T | 0.0B | RJ2GX, RJ21X |
| CO trunk | 02GS2 | 0.3A | RJ21X |
| CO trunk | 02LS2 | 0.3A | RJ21X |
| Tie trunk | TL31M | 9.0F | RJ2GX |
| Basic Rate Interface | 02IS5 | 6.0F, 6.0Y | RJ49C |
| 1.544 digital interface | 04DU9-BN, 1KN, 1SN | 6.0F | RJ48C, RJ48M |
| 120A2 channel service unit | 04DU9-DN | 6.0Y | RJ48C |

If the terminal equipment (for example, the media server or media gateway) causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-242-2121 or contact your local Avaya representative. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant.

It is recommended that repairs be performed by Avaya certified technicians.

The equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

This equipment, if it uses a telephone receiver, is hearing aid compatible.

**Canadian Department of Communications (DOC) Interference Information**

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

**DECLARATIONS OF CONFORMITY**

**United States FCC Part 68 Supplier's Declaration of Conformity (SDoC)**

Avaya Inc. in the United States of America hereby certifies that the equipment described in this document and bearing a TIA TSB-168 label identification number complies with the FCC's Rules and Regulations 47 CFR Part 68, and the Administrative Council on Terminal Attachments (ACTA) adopted technical criteria.

Avaya further asserts that Avaya handset-equipped terminal equipment described in this document complies with Paragraph 68.316 of the FCC Rules and Regulations defining Hearing Aid Compatibility and is deemed compatible with hearing aids.

Copies of SDoCs signed by the Responsible Party in the U. S. can be obtained by contacting your local sales representative and are available on the following Web site:
http://www.avaya.com/support

All Avaya media servers and media gateways are compliant with FCC Part 68, but many have been registered with the FCC before the SDoC process was available. A list of all Avaya registered products may be found at:
http://www.part68.org/

by conducting a search using "Avaya" as manufacturer.

**European Union Declarations of Conformity**

$C\epsilon$

Avaya Inc. declares that the equipment specified in this document bearing the "CE" (*Conformité Européénne*) mark conforms to the European Union Radio and Telecommunications Terminal Equipment Directive (1999/5/EC), including the Electromagnetic Compatibility Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC). This equipment has been certified to meet CTR3 Basic Rate Interface (BRI) and CTR4 Primary Rate Interface (PRI) and subsets thereof in CTR12 and CTR13, as applicable.

Copies of these Declarations of Conformity (DoCs) can be obtained by contacting your local sales representative and are available on the following Web site:
http://www.avaya.com/support

**Japan**

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

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          Haverhill, MA 01835 USA
          Attention: Avaya Account Management

E-mail:   totalware@gwsmail.com

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http://www.avaya.com/support/

# Contents

# Overview

The Avaya™ S8700 Media Server with the Avaya G600 Media Gateway, and Avaya G700 Media Gateway, is an Internet Protocol (IP) telephony server solution that routes voice, data, and video traffic using a combination of IP and traditional endpoints such as digital, analog, and ISDN. The S8700 Media Server has an Intel-based server, modular media gateways, and IP-based connectivity that meets a variety of customer telephony needs. From this point forward in this document, the S8700 Media Server with the G600 Media Gateway will be referred to as S8700 IP Connect.

**S8700 Media Server**



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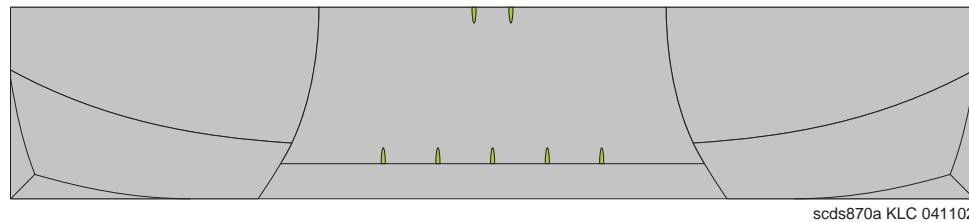
# Detailed Description

The S8700 IP Connect is an all-IP solution comprised of the following:

- Duplicated S8700 Media Servers running the Linux operating system.
- At least one Ethernet switch within the customer's own local area network (LAN) or one provided by Avaya for the customer's LAN.
- Up to 64 Port Networks (PNs) using the G600 Media Gateway.
- Up to 30 G700 Media Gateways.

The S8700 Media Servers are commercial servers with Intel Pentium III processors that can be located anywhere in the network and can be physically located up to 10 km apart. Each server is backed up by Uninterruptible Power Supply (UPS). Avaya recommends that a UPS unit also back up the Ethernet switch.

The S8700 IP Connect uses IP connectivity exclusively between PNs. The S8700 IP Connect can utilize a customer's existing VoIP-ready IP infrastructure. This solution saves customers the cost of building a separate telephony network. As an all-IP solution, traditional forms of bearer network direct connect, Center Stage Switch (CSS), and ATM-Port Network Connectivity (ATM-PNC) are not supported. Also, traditional survivability options are not supported. Such options include the Survivable Remote Processor or the ATM WAN Spare Processor.

The IP Connect control network is comprised of the customer LAN, and the IP server interface connectivity via an IP Server Interface (IPSI) board. The IPSI provides control network connectivity, tone clock and global call classifier functionality.

# Main Components

The S8700 IP Connect consists of the following system components:

- Two S8700 Media Servers

- Two UPS units, one for each server

- Two ACM compliant USB Modems

- Media Gateways: The G600 Media Gateway can be used as a PN off of the S8700 Media Server. The G700 Media Gateway can be connected to the S8700 through the G600 Media Gateway.

- At least one IPSI

- At least one TN799DP C-LAN

- At least one TN2302AP IP Media Processor to support inter-port and intra-port network bearer connectivity

- Avaya™ Communication Manager - For information about Communication Manager, see the *Overview for Avaya™ Communication Manager*, 555-233-767.

**⇒ NOTE:**
The CMC1 Media Gateway, the SCC1 Media Gateway, and the MCC1 Media Gateways are not supported by the S8700 IP Connect configuration.

# The S8700 Media Server

Characteristics of the S8700 Media Server for IP Connect Configurations include:

- 10/100 Ethernet ports to support IPSI network control links, services access, duplication, administration and alarming.

- An IDE hard disk

- An IDE CD ROM

- A distance limitation of 10 Kms between the S8700 Media Servers

- Support for global power

- Storage media for the operating system, customer translations, and maintenance software

- Support for USB port connectivity for modem

- A 128 MB Flash Card for removable storage media

- Support for remote call out alarming from either server

- SNMP alarming

The S8700 Media Server must be mounted in an open 19-inch rack that is EIA-310-D compliant.

# S8700 IP Connect Reliability

The S8700 Media Servers are duplicated. Tone clock functionality is provided by the IPSI circuit pack in each PN. As an all-IP solution, the S8700 IP Connect only supports IP port networks. The S8700 IP Connect does not support traditional CCS or ATM connected PNs.

This duplex-reliability configuration is shown in the following figure and described in the subsequent table.

**S8700 IP Connect Duplex-Reliability Configuration**
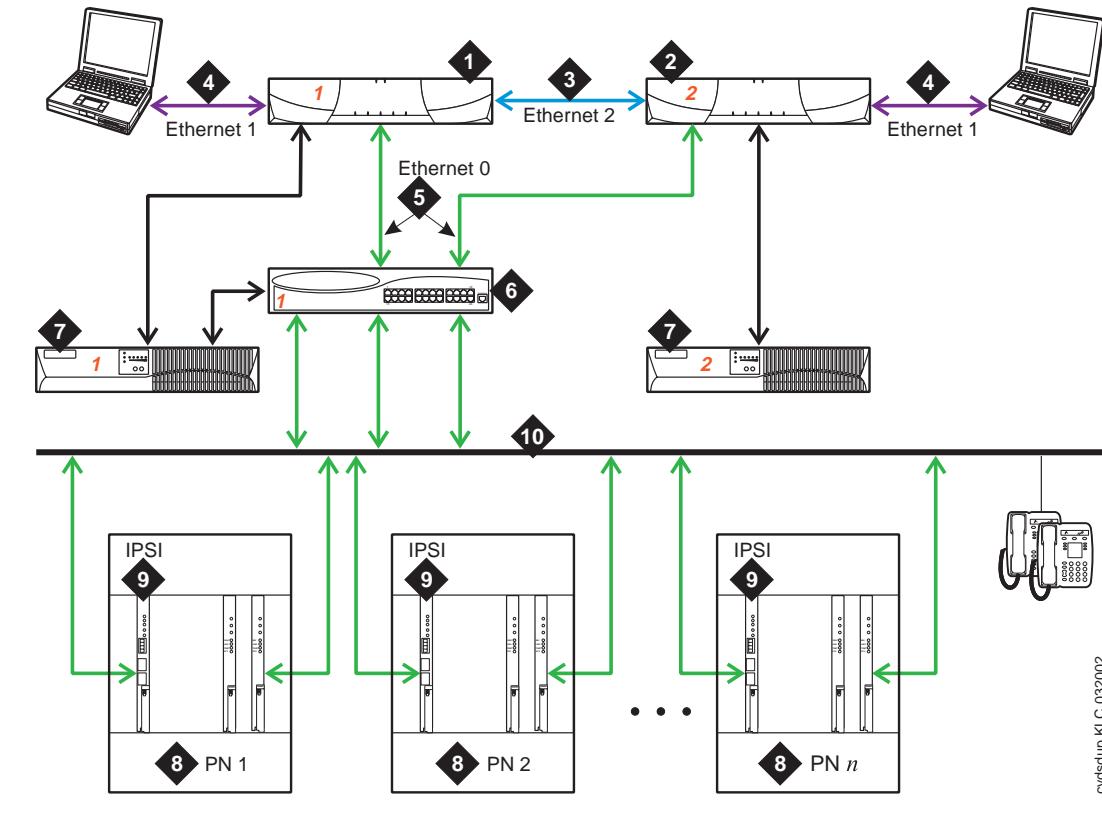


| # | Description of Connection |
|---|---------------------------|
| 1 | S8700 Media Server 1 – Two servers are always present, one in active mode and the other in standby mode. |
| 2 | S8700 Media Server 2 - Two servers are always present, one in active mode and the other in standby mode. |
| 3 | Duplication Interface - The Ethernet connection between the two S8700 media servers. |

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| # | Description of Connection |
|---|---|
| 4 | Services Interface – An S8700 media server's dedicated Ethernet connection to a laptop.  This link is active only during on-site administration or maintenance, and the services interface can link to the non-active server through a Telnet session. |
| 5 | Connection from the servers to the Ethernet switch. |
| 6 | Ethernet Switch – A device that provides for port multiplication by having more than one network segment.  In an IP Connect environment, the Ethernet switch should support 802.1 ip/Q, VLAN and 10-/100-Mbps. |
| 7 | UPS units – Two required. |
| 8 | Port Network – Optional configuration of media gateways that provides increased switch capacity. |
| 9 | IPSI - A circuit pack transports control messages over IP. This IPSI circuit pack is used so the S8700 Media Server can communicate with the PNs. |
| 10 | Customer's LAN. |

# Adjuncts

This is a partial list of some of the adjuncts that Avaya provides:

- Voice messaging and response such as INTUITY AUDIX.

- Call center tools such as Avaya Call Management System, NICE Analyzer, Avaya Call Recording, Avaya Visual Vectors and Avaya Basic Call Management System Reporting Desktop.

- System printer is supported with the use of a terminal server.

- Journal printer is supported with the use of a terminal server.

- Call Accounting Systems is supported with the use of a terminal server.

- Call Detail Recording (CDR) is supported with the use of a terminal server.

- Avaya Site Administration (ASA) is supported with the use of a terminal server.

- DEFINITY Network Management (DNM).

- DEFINITY Translator ATM Manager (DTA).

## Avaya Communication Devices

Avaya provides 6400-, 6200-, 4600-, and 2400-series devices to meet the demand for IP, digital, and analog communications in a global marketplace.  Avaya also offers a complete line of PC-based applications that extend the power of Communication Manager to the desktop.  These applications include IP Softphone, IP Agent, and SoftConsole.

Communication Manager can also be extended to a Windows CE hand-held device through the Avaya IP Softphone for Pocket PC.  Finally, wireless communications is possible through the Avaya EC500 Extension to Cellular in/out building wireless office systems.

# Avaya Communication Manager

An S8700 IP Connect uses Avaya™ Communication Manager.  For more detailed information about Communication Manager, refer to the *Overview for Avaya™ Communication Manager*, 555-233-767.

Communication Manager is an open, scalable, highly reliable, and secure telephony application. Communication Manager provides user and system management functionality, intelligent call routing, application integration and extensibility, and enterprise communications networking. Communication Manager offers over 500 features, in several categories:

- Call Center
- Telephony Features
- Localization
- Collaboration
- Mobility
- Messaging
- Telecommuting
- System Management
- Reliability
- Security, Privacy, and Safety
- Hospitality
- Attendant Features
- Networking
- Intelligent Call Routing
- Application Programming Interfaces

# Circuit Packs

The following circuit packs can be used with S8700 IP Connect.

| Code | Circuit Pack Name |
|------|-------------------|
| TN429D | DIOD or Central Office Trunk (8 ports) need V2 for Japan |
| TN433 | Speech Synthesizer for Italian |
| TN457 | Speech Synthesizer for British English |
| TN459B | Direct Inward Dialing Trunk for the United Kingdom (8 ports) |
| TN464GP | DS1 Interface with echo cancellation, T1 (24 channel), E1 (32 channel) |
| TN465C | Central Office Trunk for Multiple Countries (8 Ports) |
| TN497 (w/PPM) | Tie Trunk for Italy TGU, TGE, and TGI (4 ports) |
| TN553 | Packet Data |
| TN556D | ISDN-BRI 4-Wire S/T-NT Interface (12 ports) |
| TN725B | Speech Synthesizer for United States English |
| TN744E | Global Call Classifier-Detector (with Tone Detection) |
| TN746B | Analog Line |
| TN747B | Co Trunk |
| TN753B | DID Trunk |
| TN760E | Tie Trunk (4-wire with 4 ports) |
| TN762B | Hybrid Line (8 ports) |
| TN763D | AUX Trunk (4 ports) |
| TN767E | DS1 Interface T1 (24 Channels) |
| TN769 | Analog Line (Neon) |
| TN771DP | Maintenance Test |
| TN789B | Radio Controller |
| TN791 | Analog Guest Line (16 ports) for International offers/Canada |
| TN793B | Analog Line with Caller ID (24 ports) |
| TN797 | U.S. analog Trunk or Line circuit pack (8 ports) |
| TN799DP | Control LAN C-LAN Interface |
| TN801B | MAPD (LAN Gateway Interface for CTI, CallVisor, PC/LAN) |
| TN1654 | DS1 Converter T1 (24-Channel) and E1 (32-Channel) |
| TN2140B | Tie Trunk for Hungary and Italy (4-wire, 4 ports) |
| TN2146 | Direct Inward Dialing Trunk for Belgium and the Netherlands (8 ports) |

| Code | Circuit Pack Name |
|------|-------------------|
| TN2147C (w/o PP) | Central Office Trunk for Multiple Countries (8 Ports) |
| TN2181 | DCP Digital Line (2-wire, 16 ports) |
| TN2183 / TN2215 | Analog Line for Multiple Countries (16 ports) |
| TN2184 | DIOD trunk for Germany (4 ports) |
| TN2185B | ISDN-BRI S/T-TE Interface (4-wire, 8 ports) |
| TN2198B | ISDN-BRI U Interface (2-wire, 12 ports) |
| TN2199 | Central Office Trunk for Russia (3-wire, 4 ports) |
| TN2204 | Australian CIN board |
| TN2207 | DS1 Interface, T1 (24 Channel) and E1 (32 Channel) for MMCH |
| TN2209 | Tie Trunk for Russia (4-wire, 4 ports) |
| TN2214B | DCP Digital Line (2-Wire, 24 Ports) International Offers, Category B |
| TN2215 / TN2183 | Analog Line for Multiple Countries (16 Ports) |
| TN2224CP | Digital Line (2-Wire, 24 Ports) |
| TN2242 | Digital Trunk for Japan |
| TN2302AP | IP Media Processor |
| TN2305B | ATM-CES Trunk/Port-Network Interface for Multi-Mode Fiber |
| TN2306B | ATM-CES Trunk/Port-Network Interface for Single-Mode Fiber |
| TN2308 | Direct Inward Dialing Trunk for Brazil (8 ports) |
| TN2312 | IP Server Interface (IPSI) |
| TN2313AP | DS1 Interface (24 Channel) |
| TN2464P | DS1 Interface with Echo Cancellation T1/E1 |
| TN2501AP | Announcement (VAL) |
| TN2793B | Analog Line with Caller ID for International (24 Ports) |
| TN-CCSC-1 | PRI-to-DASS Converter |
| TN-CCSC-2 | PRI-to-DASS Converter |
| TN-C7 | PRI-to-SS7 Converter |
| TN-CIN | Voice/Fax/Data Multiplexer |

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